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ABSTRACT

The paper presents one approach to assessment and educational programming for a severely/multiply handicapped (cerebral palsy, severe mental retardation, asthma, seizures) 8-year-old boy. The curriculum based assessment and instructional recommendations reflect the position that normal developmental sequences do not solely constitute appropriate guidelines for testing and teaching severely handicapped individuals since tasks must address skills suited to the subject's chronological age. Evaluation involved both formal test results (Uniform Performance Assessment System and Autism Screening Instrument for Educational Planning) and informal test results (task analytic assessment, teacher-made attending skills test, teacher-made phonetic speech skills test, teacher-made receptive language skills test, teacher-made imitation skills test, observational pedestrian skill assessment, and checklist for assessment of recreational skills). Educational recommendations focused on structuring the learning environment to simulate the daily routine of naturally occurring events and to stress the skills of increased engagement in a task and development of a communication system. Figures and tables give such information as: a sample task analysis, a sample of a schedule of functional skills occurring at natural times during the school day, and sample plans for teaching communication skills, self-help skills, and leisure skills. (DB)

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Educational Programming for Severely Handicapped Students

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EDUCATIONAL PROGRAMMING FOR SEVERELY HANDICAPPED STUDENTS

The assessment of individuals with severe handicaps is a complex task, yet one which assumes a pervasive role in the education of these individuals. Assessment directs the selection of educational and related services, identifies salient instructional techniques, and evaluates program effectiveness. These roles validate the functionality of assessment. Nevertheless, the knowledge limitations and ideosyncratic characteristics of the population of severely handicapped persons combine to underscore the difficulty of the assessment task, a task which has consumed up to 2 to 4 weeks (Sailor & Haring, 1977). The aim of this article is to share one strategy of sequencing the assessment of a severely handicapped individual.

Case Study of Robert H. (R. H.)

Background Information

Medical History

R. H. is an 8 year, 9 month old boy who resides with his parents and two older siblings. The birth of this child was reported as delivery by Caesarean section at full term. R. H. underwent surgery to correct a cleft lip at 3 months of age. Subsequent surgery involved repeated insertions of tubes in his ears and attempted corrections of strabismus. Cerebral palsy was diagnosed through the use of electroen-

cephalograms conducted at 3 and 14 months. Allergic rhinitis and asthma were detected during the child's second year of life. Medications (i.e., tranquilizers, anticonvulsants, analgesics, and bronchodialators) were generally prescribed to control seizures, asthma, and agitation.

Educational History

Serious delays in early developmental milestones prompted the parents to seek an early intervention program for R. H. At the age of 2.6 years, the child entered a United Cerebral Palsy center and participated in educational programs for 3 consecutive years. Reaching school age, R. H. was then referred for public school placement and ultimately assigned to an elementary class for severely and profoundly handicapped children.

Assessment History

Performance checklist. The Learning Accomplishment Profile (LAP) was completed 1 year ago through teacher observation. The information indicates strengths in gross motor functioning and self-help skills, while greatest weaknesses were noted in cognitive and language abilities.

Speech and language evaluation. The Receptive-Expressive Pre-Language Behavior Language Scale was administered 10 months ago with R. H. receiving a receptive language score of 6 months and an expressive language score of 5 months. Receptively, R. H.

responded to social approach by smiling, looked directly at the examiner's face, turned at the sound of a voice, responded appropriately to a friendly or angry tone, and located the source of a sound. Expressively, R. H. demonstrated differential crying for hunger, pain, and wet, emitted squeals, grunts, growls, and the ba-ba sound chain, and vocalized displeasure.

Social evaluation. R. H. was administered the Vineland Social Maturity Scale 11 months ago. He received a raw score of 24, placing him at a social age equivalent of 1.68 years.

Physical therapy evaluation. An examination 11 months ago revealed mild hypotonia (i.e., tone fluctuations) and immature equilibrium reactions. Treatment recommendations emphasized increasing equilibrium and protective reactions, ambulation and balance on stairs, and awareness in activities. Adaptive equipment in the form of a brace for the left lower extremity with a lateral wedge in the left shoe and a right short leg brace with a medial wedge, double uprights, and lateral T strap were noted.

Vision evaluation. The Diagnostic Assessment Procedure for the Program to Develop Efficiency in Visual Functioning was administered 10 months prior to this current testing. Results indicated that R. H. was able

to spot a flashlight at a distance of 10 inches in positions above, below, to the right, and to the left of him. Within a similar range, he tracked a light horizontally, diagonally, and vertically. R. H. visually attended to a spinning top at a distance of 10-12 feet, walked between parallel bars that were 18 inches apart, and retrieved a 3-inch ball.

Observations in Natural Settings

Examiners had the opportunity to observe R. H. at his home in the presence of his parents and siblings. During this visit, R. H. exhibited diverse social skills. He played with his older brother, displayed affection for him, and took an interest in observing his sibling's activities. R. H.'s mother reported that the child is included in many family activities at the level at which he can participate. R. H. appeared to be a happy and active member of this family unit.

In the classroom setting, R. H. did seek attention from adults, but this same behavior was not observed with peers. Even in the more informal situation of recess on the playground, R. H. did not engage in peer interaction. Instead, R. H. occupied himself by investigating small objects on the playground, attempting to mouth them, or held the hand of the adult with whom he was walking. It should be noted that the skills observed in the home setting will not

automatically generalize to other settings in the absence of systematic training.

Data-Based Evaluation

This assessment and the instructional recommendations that follow reflect the position that normal developmental sequences do not solely constitute appropriate guidelines for testing and teaching severely handicapped individuals. While testing and teaching will incorporate what we know about the normal order and content of learning, tasks must address the critical functioning ingredients that are suited to R. H.'s chronological age of 8.9 years. These ingredients emphasize current and future skill needs that will enable R. H. to be a more self-sufficient participant in his present environments (e.g., home and school) and in his subsequent environments (e.g., workshop and community living arrangement).

Formal Test Results

Uniform Performance Assessment System (UPAS). The UPAS is an instrument designed to monitor the progress of individuals who are learning the types of skills normally acquired between birth and the sixth year of life. While developmental in nature, the special assessment needs of handicapped individuals are recognized through adaptations in administration. By examining the subject's actual ability to accomplish a task, even by different methods (e.g., use of prosthetic device), this test provides a more

sensitive measure of the pupil's overall level of functioning.

Pre-academic skills:	Nonadapted score	15.8%
	Adapted score	17.1%
Communication skills:	Nonadapted and Adapted score	6.3%
Social/Self Help skills:	Nonadapted score	10%
	Adapted score	12%
Gross Motor skills:	Nonadapted score	17.3%
	Adapted score	42.7%

R. H. passed most early developmental motor skills, but evidenced the need to improve balance, coordination, ball skills, and stair descent. In the area of pre-academics, R. H. displayed strengths in rudimentary visual perception and object manipulation and weaknesses in perceptual-motor tasks and sequencing. It should be noted that despite other records to the contrary, R. H. did exhibit right hand preference during this testing. In the area of social/self-help abilities, R. H. demonstrated several feeding skills, but required substantial assistance in dressing, toileting, washing, grooming, and playing. Lowest scores were obtained in communication, indicating the need to place greatest program emphasis upon receptive and expressive language.

Since this assessment is curriculum-referenced, test items may be appropriate for instructional objectives; however, deliberation must be taken in selecting those items which are age-appropriate and functional and deleting those which are not. To reiterate by means of an example, the

perceptual-motor task of turning pages, is among those skills that would normally be required of an 8-year-old and is of long-term relevance for leisure and recreation, whereas stringing beads and hammering pegs reflect infantile activities that will probably not be of future value.

Autism Screening Instrument for Educational Planning (ASIEP). This assessment analyzes the student's learning rate and learning potential through a simple discrimination task. Initially, the child is instructed in the performance of the motoric response of placing a chip on a tray through hand shaping. Subsequently, a two-step color/shape sequencing task is taught.

In order to administer this portion of the ASIEP, an adaptation of the suggested teaching procedure was required. The examiner positioned herself behind and to the right of the student to facilitate control of the materials and subject. Since right hand preference had previously been observed, the left hand was deterred from engagement with the materials. Immediately upon contact with a chip, R. H. was physically guided to pick it up and place it on the tray. To encourage the association of reinforcement with correct response, R. H. was spoon-fed peaches within 2 seconds of the appropriate action. With these adaptations, R. H. learned the task of placing a black circle followed by a white square on the tray in 13 minutes and 7 seconds, requiring only 23 of the alloted 48 trials. Further, the

task was accomplished using a random position presentation of the two chips without the need to simplify the task through fixed placements. R. H.'s performance placed him at the 57th percentile, indicating that for every 100 severely handicapped students of the standardization sample, 57 individuals scored below him and 43 scored higher than he did.

Informal Test Results

Task analytic assessment. R. H. was assessed on four functional tasks by means of task analyses: toileting, spoonfeeding, putting on a polo shirt, and drinking from a water fountain. Figure 1 provides an example of a task analysis for drinking from a water fountain.

Insert Figure 1 about here.

The data collected from these assessments indicate that R. H. did independently perform two toileting subskills of maintaining his position in front of a urinal and holding onto a paper towel when requested to wipe his hands. He demonstrated numerous spoon-feeding subskills, with additional instruction only required in scooping food onto a spoon and lifting a spoon out of the bowl. R. H. displayed an ability to push his arms through the sleeves of a polo shirt and, otherwise, maintained a cooperative behavior during dressing. His performance on the drinking

skill revealed appropriate stance in front of the water fountain and head lowering.

The results of these task analytic assessments may be included in an instructional process that emphasizes particular subskill needs and teaching methods. It is suggested that replication of these procedures in daily instruction be conducted to allow further analysis and manifestation of R. H.'s progression through the tasks.

Teacher-made attending skills test. Testing procedures to measure visual attending consisted of a request to look at the examiner, a 10-second latency, physical guidance for no response, and social reinforcement for correct response. R. H. correctly responded to 5 of the 10 presentations. Since eye contact, as well as other attending behaviors (e.g., sitting in the chair, working at a task), are prerequisites for learning activity, R. H. will require direct training in these skills.

Teacher-made phonetic speech skills test. Phonetic sounds in isolation were repeatedly presented by the examiner in order to elicit imitative production. R. H spontaneously vocalized the "au" sound and grunted in excitement, but no imitation of phonemes was emitted.

Teacher-made receptive language skills test. Photo pictures of R. H. engaged in various activities were used to assess receptive language. The examiner placed two pictures in front of R. H. and described the one that R. H. should identify. R. H. did not indicate recognition of himself in the photographs or respond appropriately to the request.

Teacher-made imitation skills test. R. H. was tested on the imitation of 13 manual signs. Upon obtaining his attention, the examiner demonstrated one manual sign, waited 5-seconds for a response, and proceeded to the next presentation. R. H. exhibited no production of imitative responses.

Observational pedestrial skill assessment. R. H.'s pedestrian skills were assessed through observation of crossing a vacant street. R. H. was taken by the hand on a walk across the private school road adjacent to the school. When the street was approached, R. H. made no attempt to pause at the curb or look for moving vehicles, indicating no awareness of street safety. Pedestrian skills will be required to allow greater community mobility as well as to minimize potential safety hazards and, therefore, constitute critical learning content.

Checklist for assessment of recreational skills. This

checklist of recreational skills was based upon observation and testing and examined abilities in the areas of mobility, manual ball skills, manual dexterity, language competence, social interaction, and self-image. R. H.'s strengths were noted in mobility and social interaction, while weaknesses were indicated in manual dexterity, manual ball skills, self-image, and language competence.

Summary of Evaluation

The ability of an individual to learn and succeed can never be underestimated. I say this with humility, having derived from my own 4-day experience with this boy that presumptions can become barriers to testing and teaching. R. H.'s response to the ASIEP far surpassed expectations of his performance. His breakthrough on this test impacted strongly upon the hopes of future successes and the effort devoted to achieving these hopes.

Yet the optimism incited by such findings must be tempered by realism. It is probable that R. H. will not be an independent adult, but will always need some assistance in daily living. Priortizing the skills which will promote greater independence and participation in community life is essential. Two skills that are most likely to increase the prospect of gaining entrance into adult developmental centers and group homes are increased engagement in a task and development of a communication system. Based upon R. H.'s

skill assessment and learning rate, both of these are within his potential for acquisition. Presently, R. H.'s advances toward these ends will be small, but it should be realistic to expect him to imitate a few signs, be toilet trained, spoon-feed himself, and drink from a cup, among other tasks, within this school year.

Recommendations

Structuring the Learning Environment

The instructional day should be structured to simulate the daily routine of naturally occurring events. The scheduling of instructional time into segments according to content areas is less appropriate for a severely handicapped individual than temporal arrangements for instruction that correspond to the chronological occurrence of tasks/activities in real life. An illustration of practical scheduling may

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Insert Figure 2 about here.

---

be found in Figure 2.

The organization and pace of instruction will require a high level of structure when new learning activities are presented. In teaching the discrimination task, close teacher proximity, control of materials, a brief latency of alloted time for a response, and immediate consequation of no response, erroneous response, or correct response were all required for learning to occur.

Developing Functional Skills in the Content Areas

The selection of functional skills reflects the position that tasks which are targeted for instruction should be those tasks required to function in the current and future environments that are available to non-handicapped children. Relevant skills should be identified in academic, community, and domestic domains. Based upon the determination of relevant skills, tasks which transfer across many activities and environments need to receive priority training. Figures 3, 4, 5, and 6 represent specific planning for teaching functional skills. These figures

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Insert Figures 3, 4, 5, 6 about here.

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include goals, objectives, methodology, and assessment suggestions to program for severely handicapped learners.

References

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Figure Caption

Figure 1. A sample task analysis for drinking from a water fountain.

Record plus (+) for correct, independent completion of a step in the task analysis or the first letter (e.g., P, M, G, V) for the level of physical, modelled, gestured, or verbal prompt required.

Name _____ Date

Program _____

Instructor _____

1. Looks at fountain.										
2. Faces fountain.										
3. Looks for control.										
4. Raises arm.										
5. Touches control.										
6. Activates control.										
7. Looks at water.										
8. Maintains flow.										
9. Lowers head to water.										
10. Drinks.										
11. Deactivates control.										
12. Raises head.										

Figure Caption

Figure 2. A sample of a schedule of functional skills occurring at natural times during the school day.

	RECREATIONAL	COMMUNITY	VOCATIONAL	DOMESTIC
Arrival		Social greeting program (Co, S/E) ↔	Coat off program (S,M) →	Hair combing program(S,M,S/E)
Morning Tabletop Instruction	←	Communication program-receptive language, motor imitation of manual signs (C, Co, A, S, S/E) in combination with attending skills program-eye contact, sit in chair	Discrimination of personal posessions program (A,S/E,C)	→
Morning Break		Water fountain drinking program (S,M) →	←	Toileting program (S,M,S/E)
Physical Education	Group game programs - kickball, dodgeball, hot potato (M,S/E) Walks to include descent of steps (M,S,S/E)	Pedestrial skills program(M,C,S,S/E) Generalization of toileting skills program (S,M,S/E)	Coat on program (S,M) Coat off program (S,M)	
Lunch Period			←	Meal preparation program-dispensement of napkins (A,M,S,S/E) Spoon use program (M,S) Cup use program (M,C,S) Teeth brushing program (M,S) Toileting program (S,M,S/E)
Afternoon Instruction	Independent skills programs-turning on tape recorder to listen to music, making a scrapbook, turning pages of a book (A,S,C,S/E)	← Communication and Attending skills programs (C,Co,A,S,S/E) →	Polo shirt smock-on program for art work (M,S)	Vacuum pushing program (M,S) Tabletop cleaning program (M,S)
Dismissal		Salutations program (Co, S/E)	Collection of possessions program (M,S) Coat on program (M,S)	
	Coding:	C = Cognitive Co = Communication	A = Academic-related	M = Motor S = Self-help S/E = Social/Emotional

Figure Caption

Figure 3. A sample plan for teaching communication skills.

Area: Communication Skills

Annual Goal: Robert will independently use 3 manual signs.

Criteria: Robert will consistently and correctly communicate "toilet", "drink", and "ball" for 3 consecutive days.

Current Level: Robert is engaging in ideosyncratic ways of communication. Robert has the manual dexterity to produce signs. Imitation skills are weak.

Short Term Objective:

1. Given the instructional cue, "Look at my hand," Robert will make eye contact with physical guidance, as the instructor demonstrates a sign, for 4 out of 5 times.

2. When requested, Robert will look at the instructor's demonstration of a manual sign independently for 4 out of 5 times.

3. Given observed demonstration and verbal counterpart, Robert will look down at his own hand and imitate the manual sign with physical guidance for 9 out of 10 trials.

4. Given observed demonstration and the request, "Sign (verbal counterpart)," Robert will look down at his own hand and imitate the manual sign independently within 5 seconds of the request for 9 out of 10 trials.

5. Follow same procedure as described above to increase number of signs.

Methods:

Speech instruction of manual sign imitation should be conducted twice daily. Signing should also be paired with all activities throughout the day in functional use, applying the same procedures as in therapy.

Assessment/Measurement:

T.A. chaining
Changing criterion graph
Social validation

Figure Caption

Figure 4. A sample plan for teaching a self-help skill.

Area: Self-help Skills

Annual Goal: At home or school, if placed in front of a mirror and given a comb, Robert will comb his hair independently.

Criteria: Robert will comb his hair, using the adaptive combing method, for three consecutive probe days.

Current Level: Robert will hold a comb in his hand and comb his hair with physical guidance.

Short Term Objectives:

1. Given the comb in the instructor's hand, Robert will sign "comb" with physical guidance for 3 out of 4 trials.

2. Given the placement in front of a mirror and the cue, "Robert, pick up the comb," Robert will pick up the comb within 5 seconds of the command for 4 out of 5 trials.

3. Given the comb in hand and placement in front of a mirror, Robert will place unoccupied hand horizontally across the crown of his head with physical guidance for 4 out of 5 trials.

4. Given the comb in hand and placement in front of a mirror, Robert will place unoccupied hand horizontally across crown of head independently upon request for 4 out of 5 trials.

5. Given hand in place on head, Robert will comb hair in front of hand forward with physical guidance for 4 out of 5 trials.

6. Given hand in place on head, Robert will comb hair in front of hand forward and hair on the sides of head down with physical guidance for 4 out of 5 trials.

7. Given hand in place on head, Robert will comb hair at the front and sides of head independently upon request for 4 out of 5 trials.

8. Given front and side hair combed, Robert will comb hair back behind his hand with physical guidance for 4 out of 5 trials.

9. Given comb, Robert will comb hair to the front, sides, and back of head independently upon request for 4 out of 5 trials.

Materials:

comb, mirror

Methods:

Task analysis

1) obtains comb

2) orients head and eyes to mirror
3) places comb in right hand
4) places left hand horizontally across hair whirl at back of head
5) combs hair forward from hand
6) combs hair down from sides
7) combs hair back behind hand

Assessment:

T. A. assessment/graph, Social validation

Figure Caption 5. A sample plan for teaching a domestic skill.

Area: Domestic Skills

Annual Goal: At home or school, if given a napkin and a direction to set the table, Robert will put the napkin at a place setting designated by a chair independently.

Criteria: Given each of up to eight napkins, Robert will correctly distribute a napkin at each place setting.

Current Level: Robert has the manual dexterity to pick up and release a napkin; however, he may crumble a paper napkin upon contact.

Short Term Objectives:

1. Given napkins in the instructor's hand, Robert will indicate a desire to help set the table by signing "napkins" with physical guidance 4 out of 5 times.

2. Given one napkin placed in Robert's hand, he will put the napkin at the place setting designated by a chair with physical guidance for 9 out of 10 trials.

3. Given one napkin in hand and the cue, "Robert, set the napkin on the table," Robert will put the napkin at the place setting designated by a chair within 5 seconds of the request for 9 out of 10 trials.

4. Follow the same procedure as indicated above, increasing the number of napkins to be set.

Methods:

changing criterion design for increasing number of napkins placed, T.A. chaining

Materials:

napkins, table, chairs

Assessment/Measurement:

T.A. assessment
Frequency count of number of napkins for each STO
Social validation

Figure Caption 6. A sample plan for teaching a leisure skill.

Area: Leisure Skills

Annual Goal: At home or school, if given a tape recorder (battery operated), tape, and volume set, Robert will turn on tape recorder and listen to music.

Criteria: Robert will turn on tape recorder and listen to music independently for three consecutive probe trials.

Current Level: Robert enjoys listening to quiet music.

Short Term Objectives:

1. Given a tape recorder in instructor's hand, Robert will indicate a desire to listen to the tape recorder by reaching for tape recorder and signing "music" (physically guided), for 4 out of 5 trials.

2. Given a tape recorder with a raised button, Robert will touch the raised button with his index finger with physical guidance by the instructor for 9 out of 10 trials.

3. Given a tape recorder with a raised button, Robert will touch the raised button with his index finger independently within 5 seconds of the command, "Touch the button" for 9 out of 10 trials.

4. Given a tape recorder with a raised button, and the instructional cue, "Push the button," Robert will push down the button with physical guidance for 9 out of 10 trials.

5. Given a tape recorder with a raised button, Robert will push down the correct button with no physical guidance for 9 out of 10 trials.

Materials/Methods:

battery operated tape recorder, tape, volume set

Assessment:

T.A. assessment/graph
Social validation